Flight Hardware Logistics Program (FHLP)

Europa Orbiter / X2000 Avionics Industry Briefing

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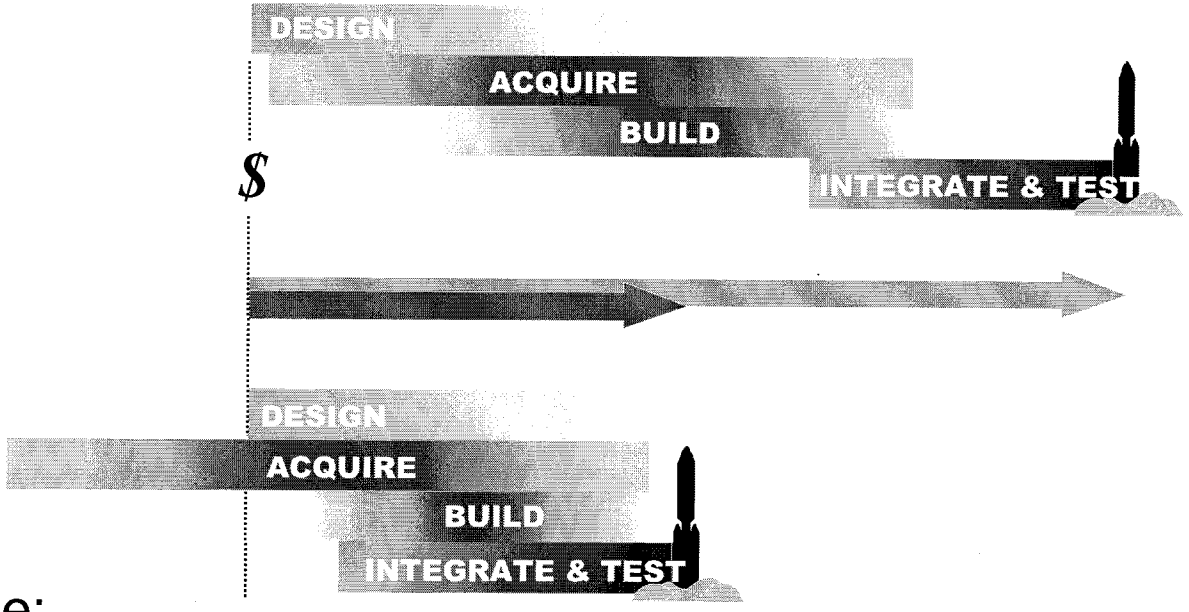
Questions

- What is FHLP?
- How does it work?
- What has it done?
- What is it doing?
- What will it do?
- How can it help you?
- How can you use it?

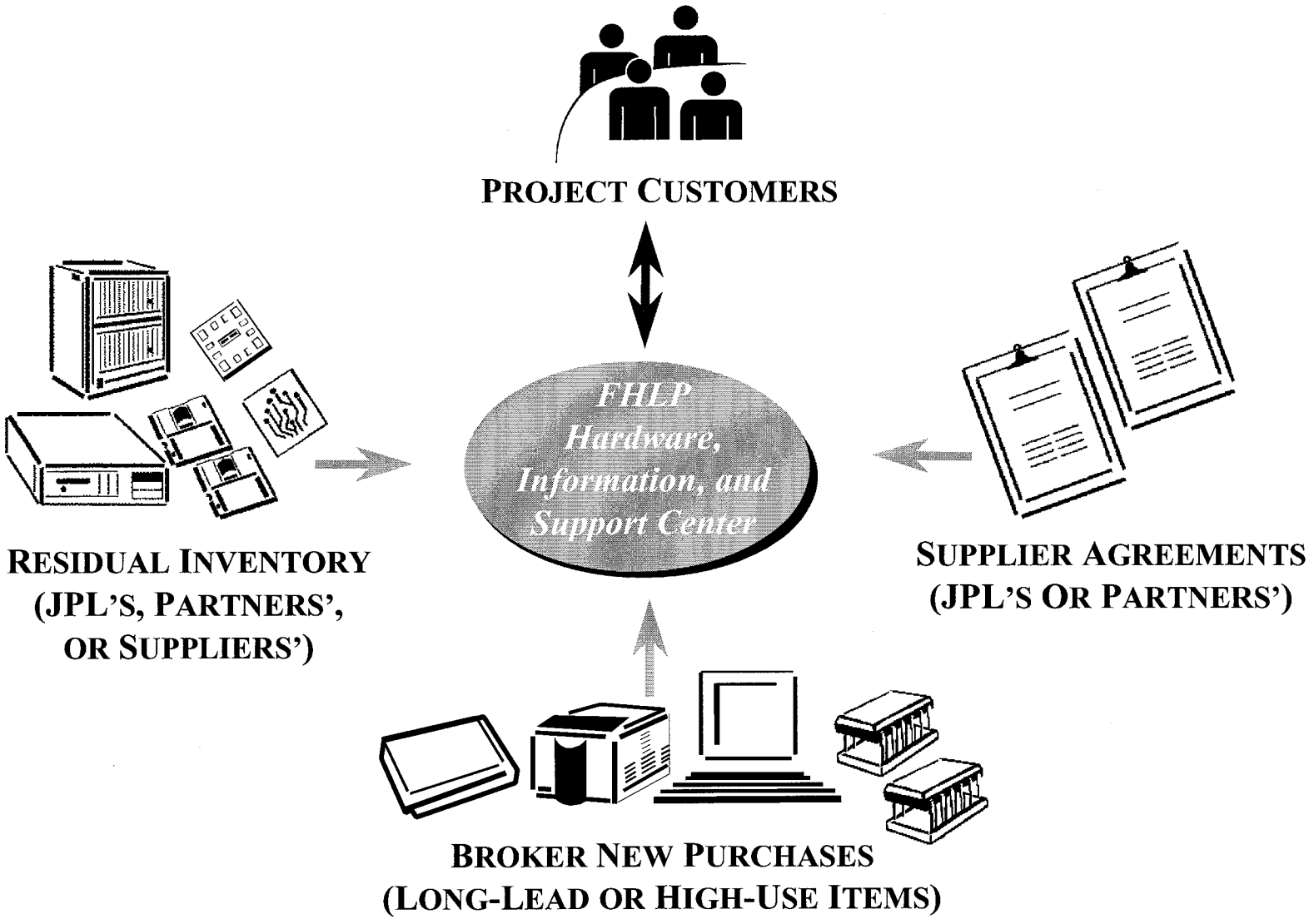
FHLP Challenge

- Given: Product development processes are being reengineered to halve cycle time – but much of the acquisition time is beyond JPL's control



- Challenge:
  - Compress the acquisition cycle … or otherwise overcome the long-lead-time problem
  - Provide key hardware information earlier and easier (e.g., availability, technical characteristics)

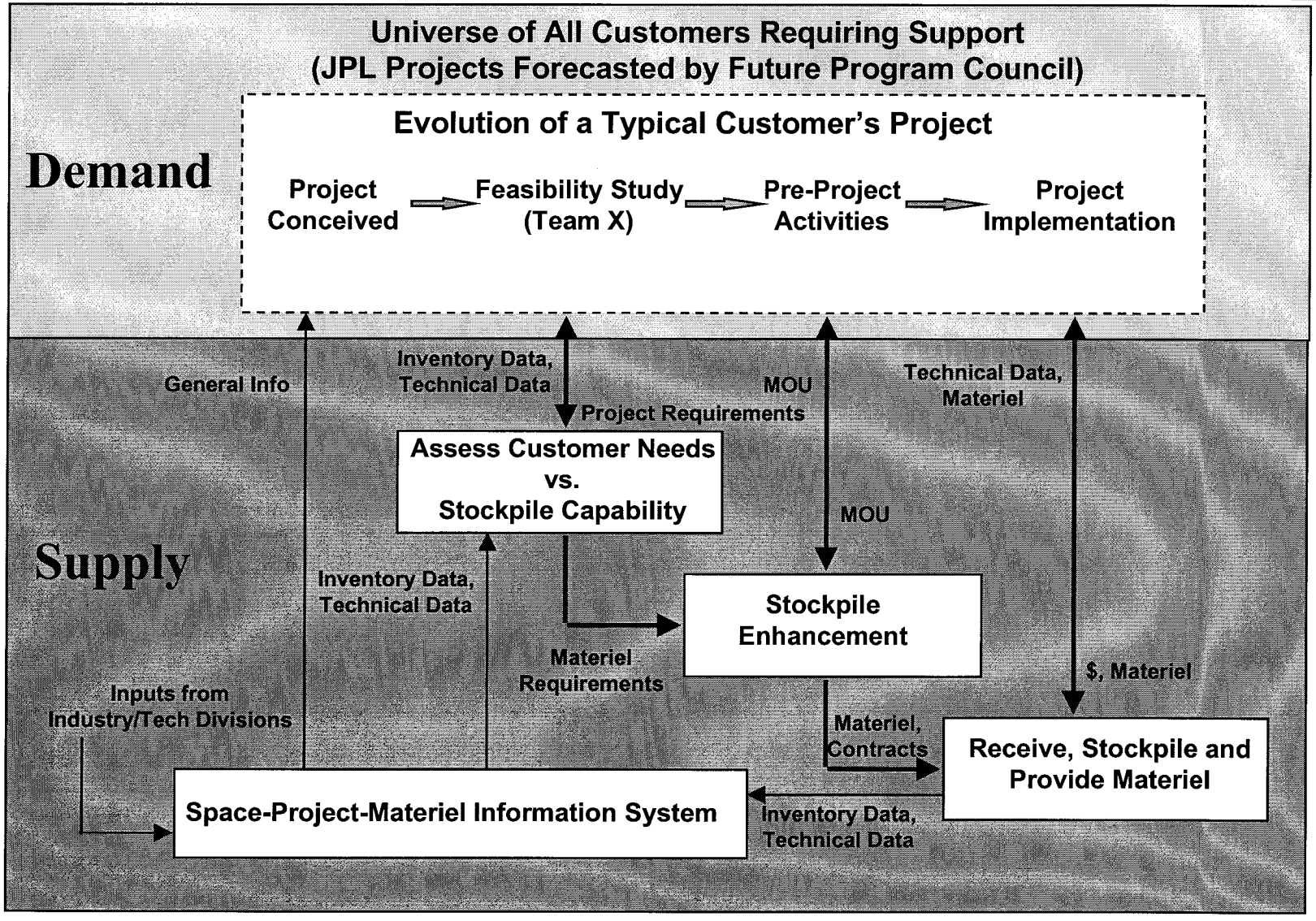
FHLP Concept



FHLP Approach – Examples

- Anticipatory Procurement
  - Flight Parts Service Center (pre-stock EEE parts for projects)
- Common Buys
  - RAD6000 Flight Computer – 31 flight computers for 9 projects (saved $3M)
  - EO/X2000 SFC – 5 PTs for DI/EO, 8 EM/FL for DI/Starlight
- Supplier Agreements
  - Magnitude-3 Power Converter Blanket Purchase Agreement – 5 Projects
- Residual Inventory Reuse
  - FHLP Catalog tracks flight residual using NBS Assets and "F#" barcodes
  - FHLP Bonded Stores and Residual Inventory Capture program
- Inventory Information – FHLP Catalog, Website and Docushare Library

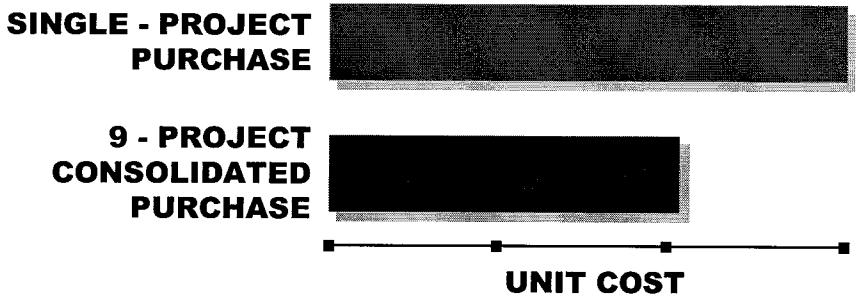
FHLP Process



Our Successes

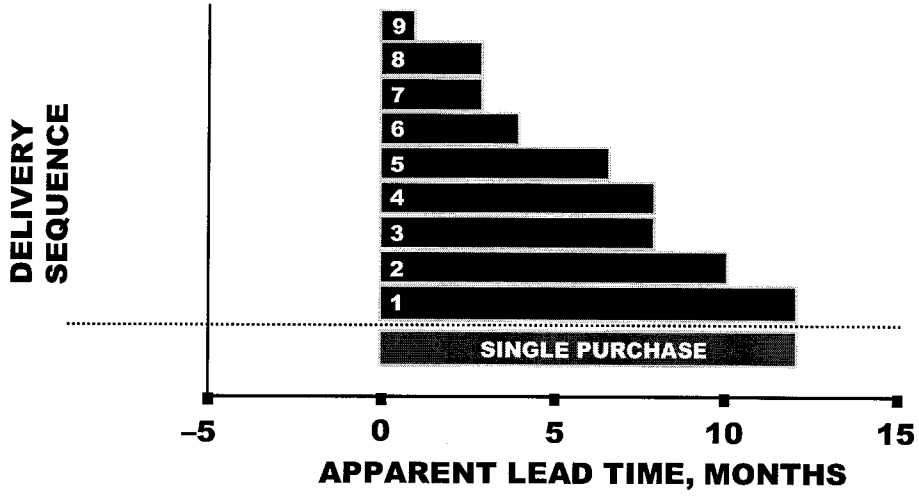
Flight Computer Purchase

- Major cost savings



> $ 3 M SAVINGS

- Significant schedule savings



REDUCED LEAD TIME

- Added win/win benefits

Our Successes

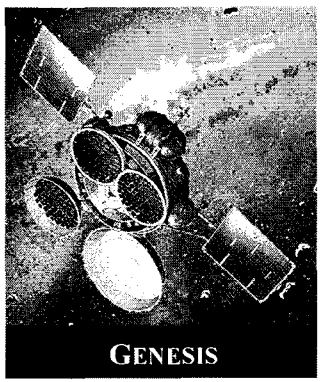
Use of Residual JPL Inventory

- **Eliminated Acquisition Cycle**

BUILD OR BUY — **UP TO 50 WEEKS**

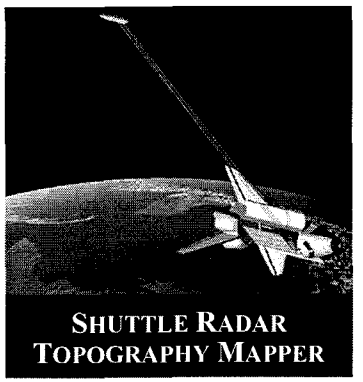
ON HAND | **TODAY**

Selected Customers Helped



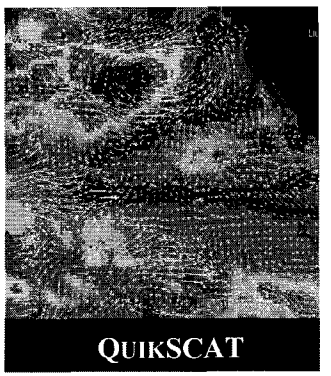
GENESIS

- Reed–Solomon encoders
- Hardware command decoders



SHUTTLE RADAR TOPOGRAPHY MAPPER

- Helium tanks
- High-pressure regulator
- Valves
- Transducer
- Filter



QUIKSCAT

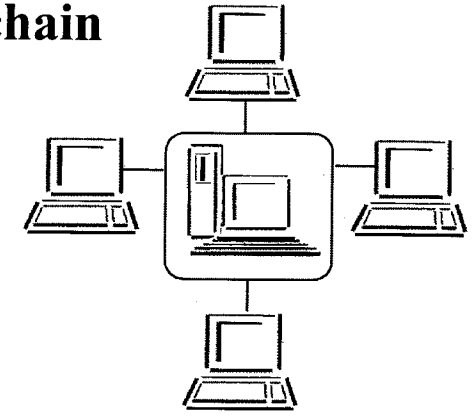
- Bus interface units
- 8-blade louvers

See our catalog at — **http://fhlp**

Our Successes

Use of Residual Supplier Inventory

- **Database connects users to the supply chain**
- **Links to 12 suppliers of**
  - **— Transistors — Diodes**
  - **— Microcircuits — Hybrids**



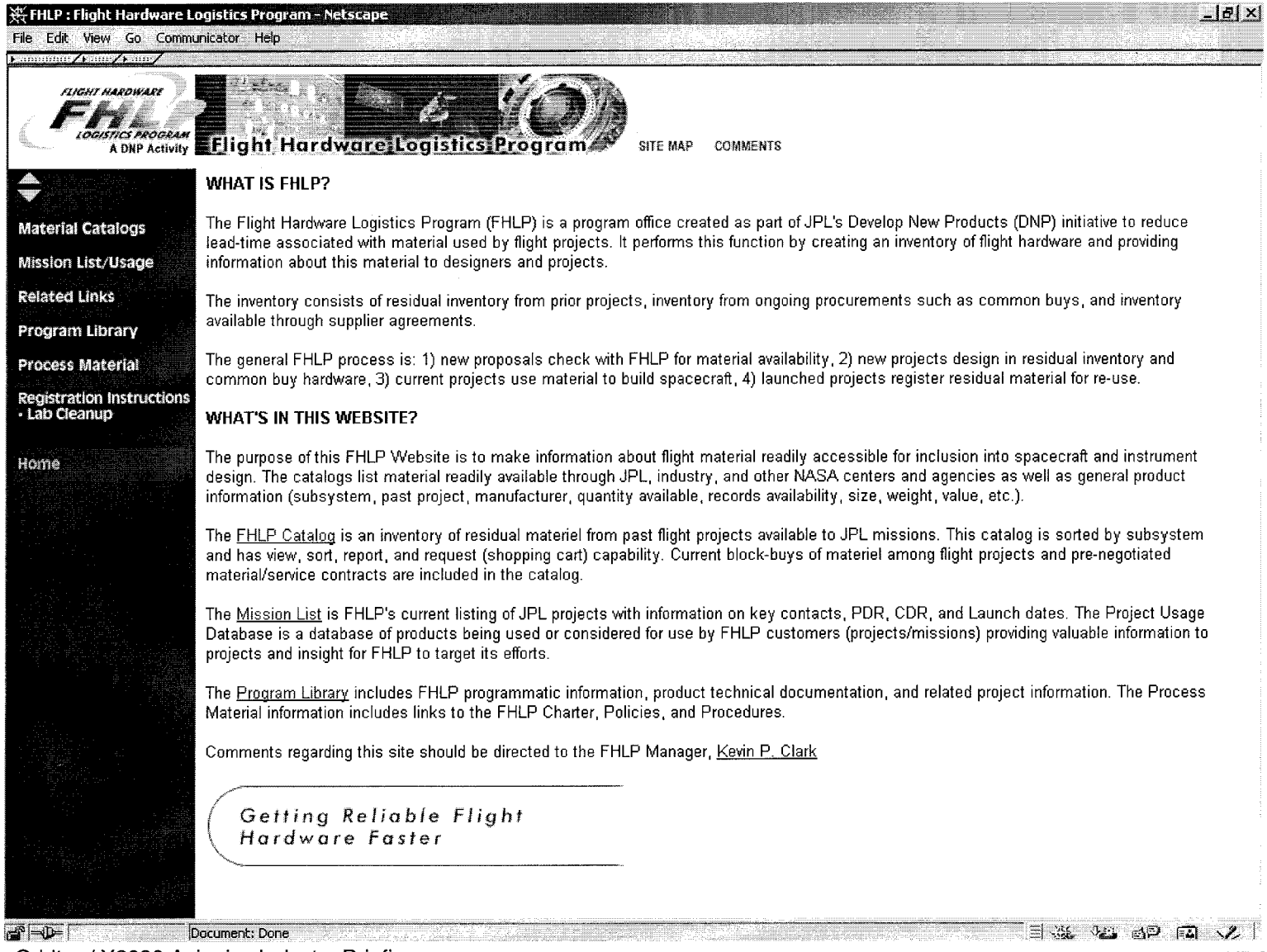
- **Identifies > 400,000 space-level devices immediately available from supplier stock**
- **Drastic lead time reduction**

BUILD TO ORDER — **20 – 40 WEEKS**

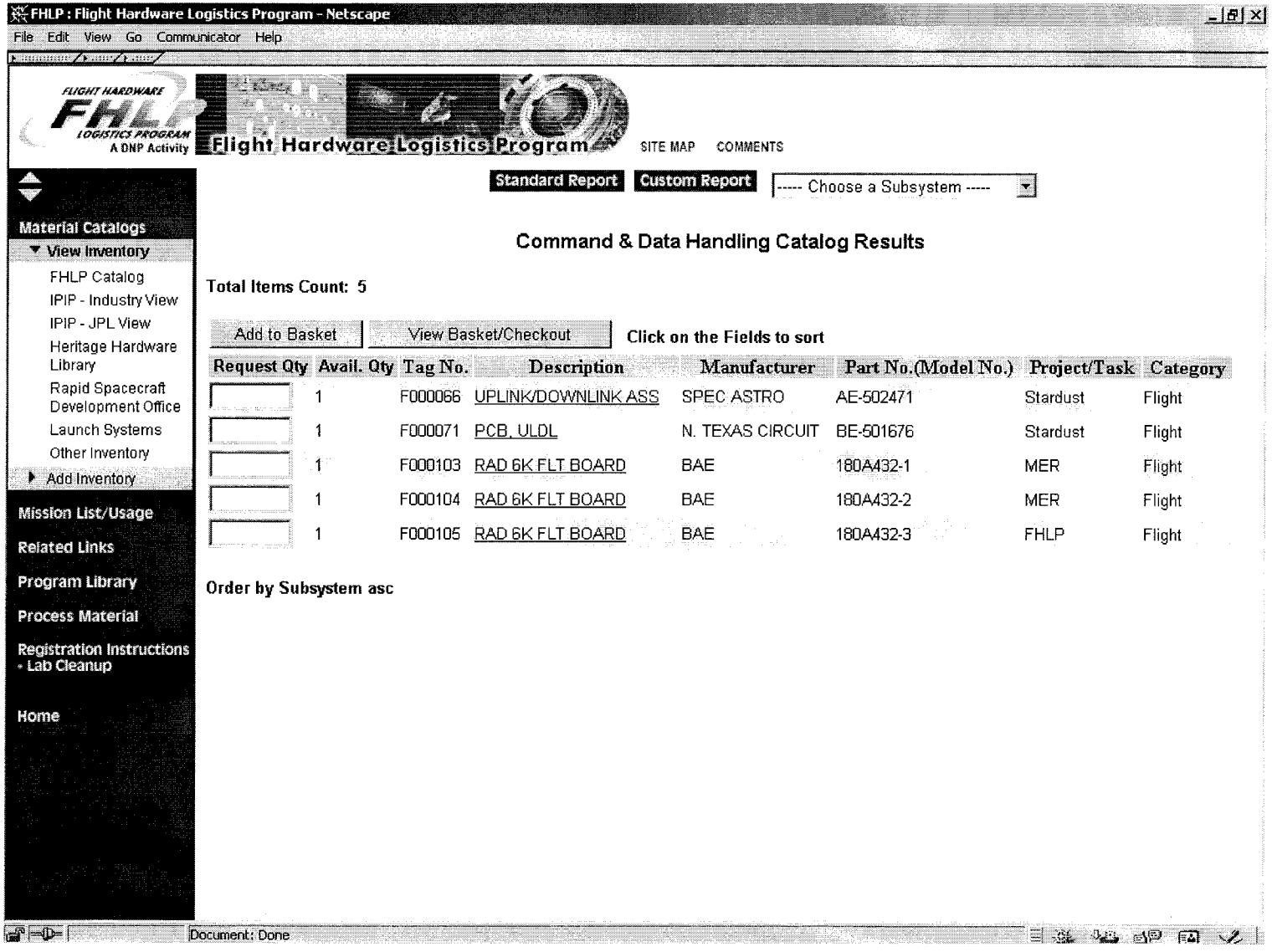
SHIP FROM STOCK — **≤ 1 WEEK**

See our catalog at — http://fhlp

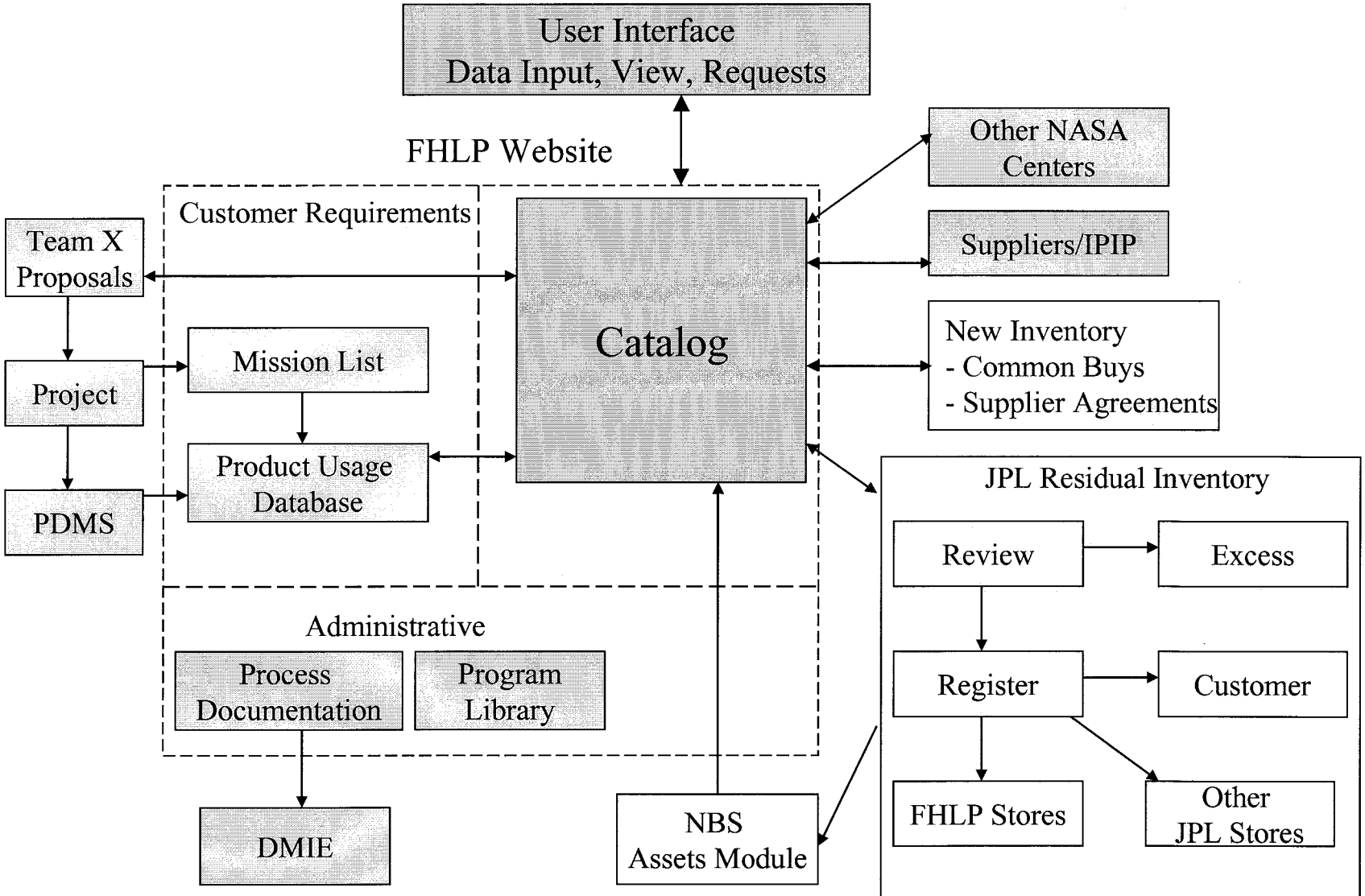
FHLP Website



FHLP Catalog

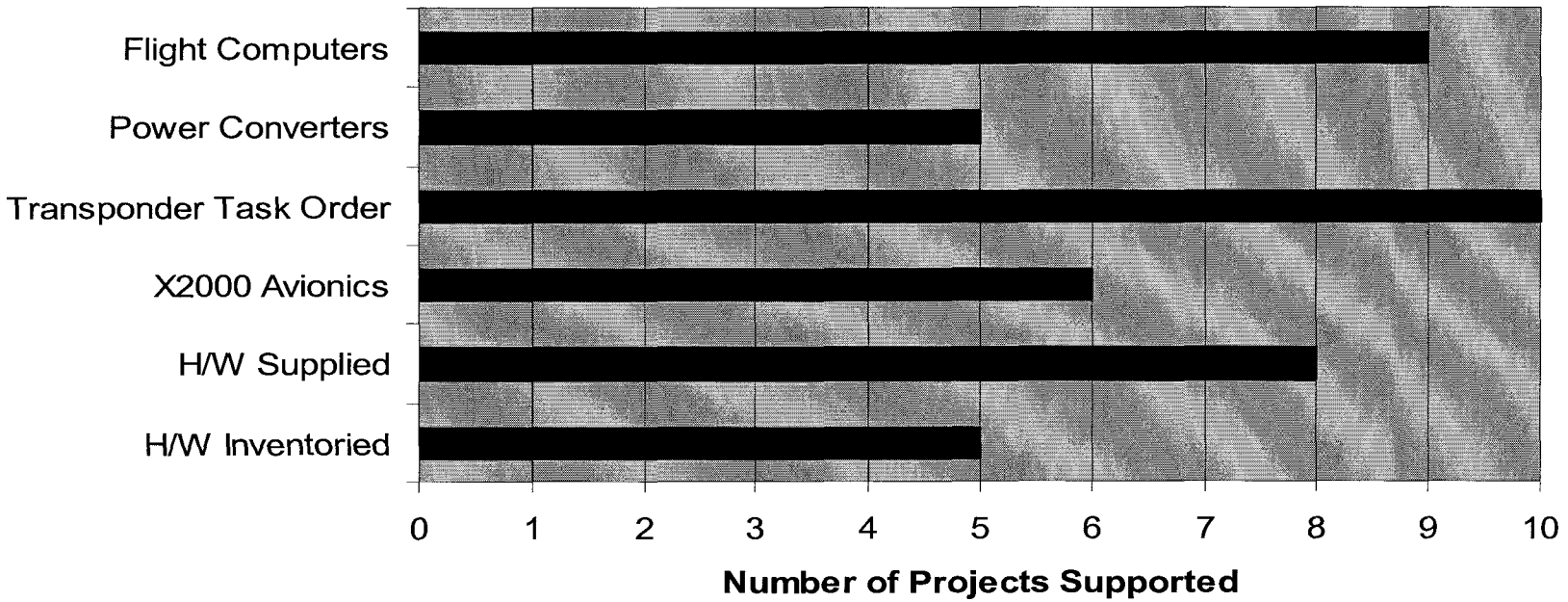


FHLP Information System



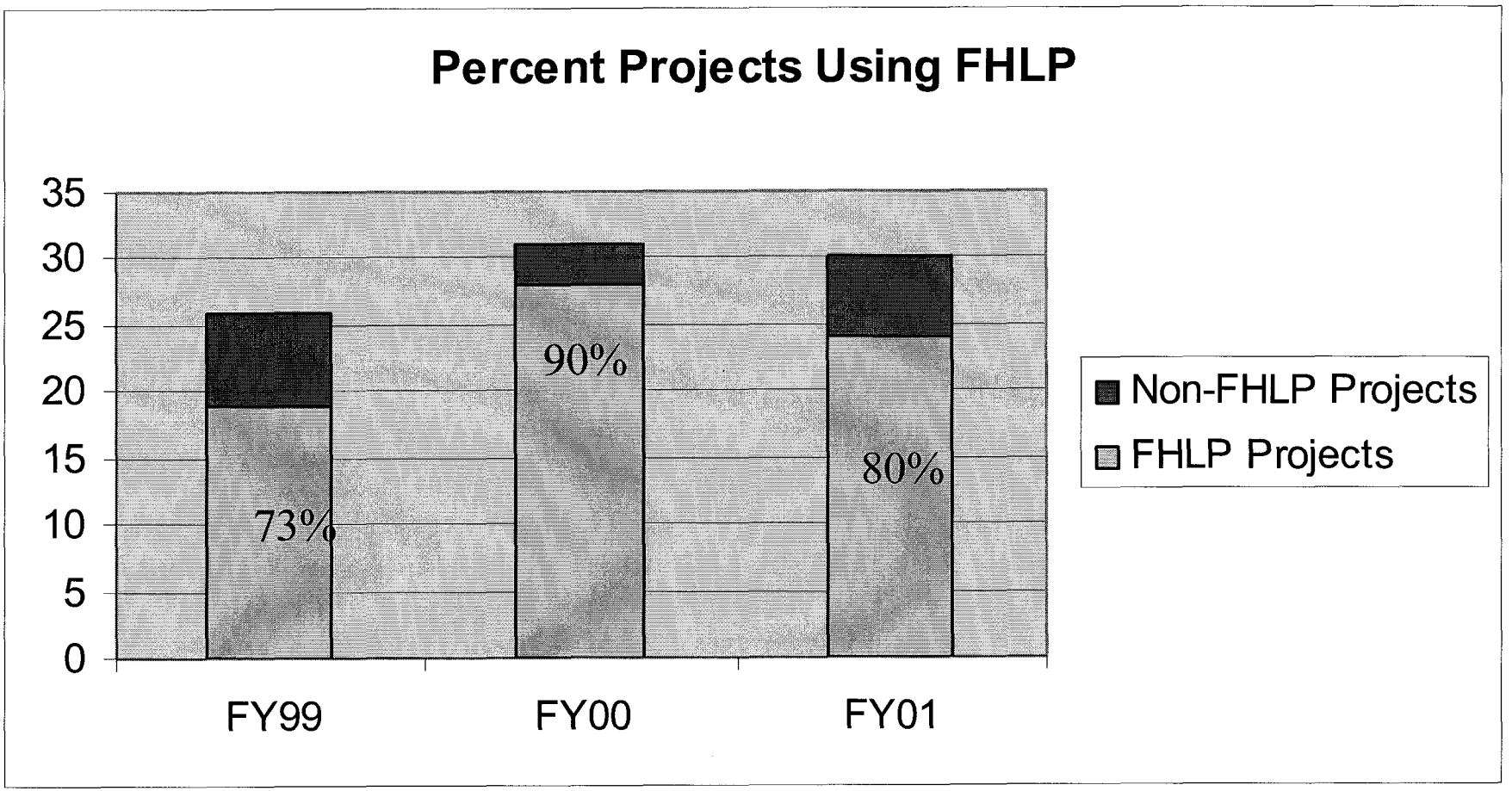
Our Successes

FY00 Products/Services



ATHENA	Genesis	MECA	SIM
ATMOS	GLL	MIRO	SIRTF
CNSR	GRACE	MLS	Solar Probe
Deep Impact	Mars'98	MSR	Space Technology 3
DS1	Mars'01	MUSES-CN	Stardust
Europa Orbiter	MER	Pluto/Kuiper Express	TES
GALEX	Micromission	Seawinds 1b (AlphaScat)	X2000

Latest Process Performance Metrics



FHLP EO/X2000 Avionics - Objectives

Overall Objective:
Deliver EO/X2000 avionics to future projects

Approach Objectives:

- Marketing
  - Develop customer MOUs for EO/X2000 avionics
- Engineering
  - Match EO/X2000 avionics capabilities with customer requirements
- Acquisition
  - Place and execute fixed price contracts to deliver EO/X2000 avionics
- Infrastructure
  - Provide necessary infrastructure and information to support customers
- Management
  - Develop and implement an implementation plan to meet objectives

How can FHLP help you?

- Today:
  - Internal JPL focal point for future EO/X2000 avionics users
    - Common buys
    - Information/infrastructure
    - Eventual inventory of residual flight hardware
  - Mission List –potential project customers for EO/X2000 avionics

- Future:
  - Project Usage Database: Planned JPL project flight hardware usage
  - Common JPL interface (internal and external) for flight hardware inventory and information
  - Space Logistics Consortium – JPL flight hardware "marketplace" to leverage industrial partner and JPL usage to improve clout with suppliers
  - Common buys for multiple JPL projects of EO/X2000 avionics
  - Supplier agreements (open contracts, long-lead parts buys, etc.)

How can you use FHLP?

- Contact information
  - Manager: Kevin Clark (818) 354-7708, kevin.p.clark@jpl.nasa.gov

- Send FHLP your anticipated needs in support of JPL projects
  - Helps FHLP to target common buys, long-lead parts buys, etc.
  - Identify slices, modules, ASICs and quantities needed

Potential Example Missions List

(note: NOT an official list)

Project	Launch Date	Name
ST-5 CCNT	6/03	Space Technology 5 - Constellation Communication & Navigation Transceiver
WFPC 3	7/03	Wide Field Planetary Camera 3
EO-3	10/03	Earth Observer 3 (not JPL mission)
EO-4	12/03	Earth Observer 4
DI	1/04	Deep Impact
ST-6	2/04	Space Technology 6
OCD	5/04	Optical Communications Demonstration
Smex '00	5/04	Small Explorers (proposal)
COSMIC	7/04	Constellation Observing Systems for Meteorology, Ionospher and Climate (GPS POD)
STB	7/04	Spectral Test Bed
ESSP-1	8/04	Earth Space Science Program 1 (L2 - 8/05)
STEP	8/04	Satellite Test of the Equivalence Principle (Smex - Step 2 in 10/02)
PKE	3/05	Pluto/Kuiper Express
TMI (InSAR)	3/05	Topography Mission Initiative (Interferometric SAR) (L2 = 3/09)
LCAP-PARCS	8/05	Laser Cooled Atomic Physics Experiment - Primary Atomic Reference Clock in Space (ISS)
LTMPF	8/05	Low Temperature Microgravity Physics Experiment (L2 = 12/06, L3 = TBD)
MRO	8/05	Mars Reconnaissance Orbiter
OTM	9/05	Ocean Topography Mission
Smex '01	9/05	Small Explorers (proposal)
ST-7	11/05	Space Technology 7
ESSP FY'02	3/06	(JPL 3 proposals: InSAR, Ocean Surface Salinity, Global Soil Moisture)
Midex '01	4/06	Mid Explorers (proposal)
Smex '02	5/06	Small Explorers (proposal)
Starlight	7/06	Space Technology 3 (early launch 6/05)
AlphaScat	8/06	Seawinds 1b
Dawn	8/06	(Discovery 9 proposal)
OVW	8/06	Ocean Vector Winds Mission (on ADEOS II, follow on to Seawinds - part of FPOSE)
TDGFM	11/06	Time Dependent Gravity Field Mapping Mission
Mars '07 Scout	12/06	Trak II (plan, balloon or multiple rovers)
Inside Jupiter	1/07	(Discovery 9 proposal)
Hershel/Planck	4/07	Far infrared and Submillimater Space Telescope (ESA delivery in '02)
Mars Netlander	6/07	(French) - JPL hardware: Telecom, wind/temp, sesimometer deliveries in '01-'04
EM 3	8/07	Exploratory Mission 3 (was ESSP 3, L2 = 8/08)

Project	Launch Date	Name
Mars'07 ASI Orbiter	8/07	(Italy) - Telecom Orbiter
Mars'07 CNES Orbiter	8/07	(French) - JPL supply instrument and docking technology
Mars '07 Smart Lander	9/07	Mars'07 Smart Lander
LCAP-RACE	1/08	Laser Cooled Atomic Physics Experiment - Rubidum Atomic Clock Experiment (ISS)
Solar Probe	2/08	GSFC: Living with a Star Program
Europa Orbiter	3/08	Europa Orbiter (absorbed X2000)
Midex '03	4/08	Mid Explorers (proposal)
CNSR	5/08	Comet Nucleus Sample Return
Smex '04	5/08	Small Explorers (proposal)
ARISE	6/08	Advanced Radio Interferometry between Space and Earth
Discovery 10	6/08	Discovery 10
SIM	4/09	Space Interferometry Mission
NGST	6/09	Next Generation Space Telescope (GSFC)
EM 5	8/09	Exploratory Mission 5 (L2 = 8/10)
Mar'09 Express	8/09	ASI (SAR) Science Orbiter (follow on to '07)
LISA	9/09	Laser Interferometer Space Antenna (GSFC)
Midex '05	4/10	Mid Explorers (proposal)
Discovery 11	9/10	Discovery 11
TPF	9/11	Terrestrial Planet Finder
Mars'11 Sample Return	10/11	Mars'11 Sample Return (could slip to '14 - French orbiter)
Discovery 12	6/12	Discovery 12
EM 9	8/13	Exploratory Mission 9 (L2 = 8/14)
Mars'13 Science Orbiter	12/13	CNES Science Orbiter
Mars'16 Lander	2/16	Second sample return like in '11
GES	N/A	Global Earthquake Satellite Mission
CLPRM	TBD	Cold Land Processes Research Mission
Europa Lander	TBD	Europa Lander
GSAR	TBD	Geographic Synthetic Aperature Radar
Jason-2 WSOA	TBD	Wide Swath Observing Altimeter
Mars'11 CSP	TBD	Competed Scout Payload
ST-10	TBD	Space Technology 10
ST-8	TBD	Space Technology 8
ST-9	TBD	Space Technology 9